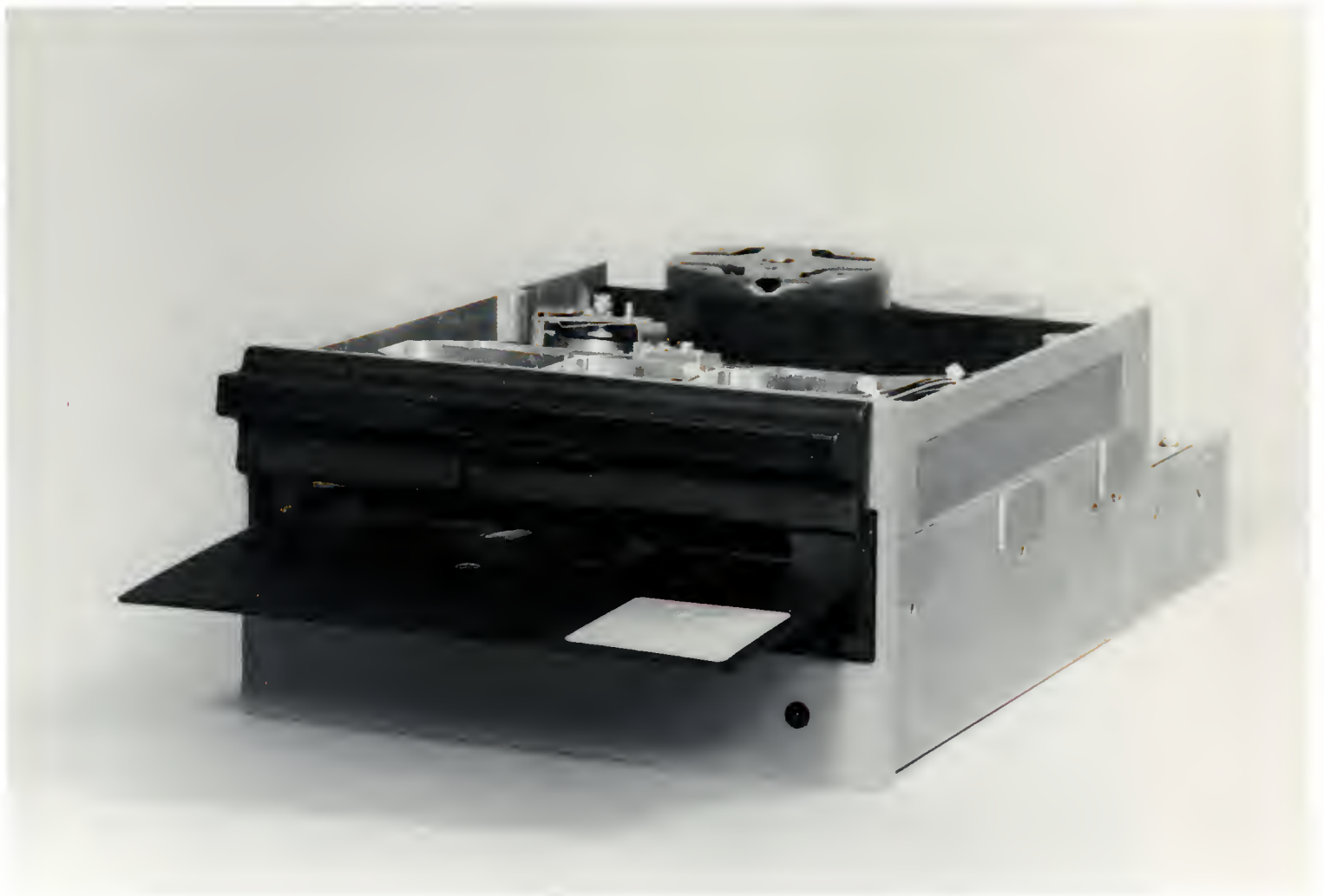The Model 144M is the latest generation of CalComp's line of Floppy Disk Drives. It features performance advantages, coupled with reliability and flexibility, packaged in a unit that can be incorporated easily into a wide variety of systems designs. Capable of two-sided, double density operation, the 144M Drive stores up to 1.6 Megabytes of unformatted data.

The 144M Drive is form, fit and function-compatible with many contemporary floppy drives, and offers the following significant advantages to the OEM designer and user:

- *Both Hard and Soft Sector Capabilities* in every drive provide system design flexibility.
- *High Performance Band Positioner* provides 3 msec track-to-track access time and accurate positioning.
- *Superior Read/Write Margins* eliminate the requirement for write precompensation in the controller.
- *Only Two DC Voltages (+5 VDC and +24 VDC)* eliminate the need for −5 VDC, reducing power supply requirements.
- *Switch and Jumper Selectable Features* available in the standard drive provide over 40 no-cost options.
- *Mounts in 3 Planes without Any Readjustments,* adding flexibility in system design.
- *Mounts in Standard 19-inch RETMA Rack,* easing cabinet design considerations.
- *Overlapping Seeks Capability* increases data throughput.
- *Instantaneous Speed Variation of ± 1%* enhances data reading and writing accuracy.

Write Protect, Activity Light and a choice of domestic and international power options are also included. The only feature not available in the standard unit is an optional programmable door lock.

Fully compatible with IBM formats (3740, System 32, Series 1, and System 34) the 144M can use both Modified Frequency Modulation (MFM or M²FM) for double density applications and Double Frequency Modulation (FM) for single density applications.

Up to four 144M Drives can be connected in radial (parallel) or daisy chain (series) configurations, and each drive can be individually addressed for drive select and head load functions.

The 144M incorporates the half-decade of experience gained by CalComp, a pioneer in floppy disk technology, and is supported by a full range of services, including factory repair, training, and documentation as well as a variety of accessory items.

The 144M Floppy Disk Drive offers the OEM community and drive user a wide choice in features and an uncommon choice in capabilities.

Specifications and Characteristics

Unformatted Capacity (Double Density)
Per Flexible Disk:	12.8 Mbits (1.6 Mbytes)
Per Track:	83 Kbits (10 Kbytes)

Unformatted Capacity (Single Density)
Per Flexible Disk:	6.4 Mbits (802 Kbytes)
Per Track:	41.6 Kbits (5.2 Kbytes)

Hard Sector Format Capacity (Double Density)
Per Flexible Disk:	10.4 Mbits (1.3 Mbytes)
Per Track:	67.6 Kbits (8.4 Kbytes)
Per Sector:	2112 bits (264 bytes)

IBM 3740 Format Capacity
Per Flexible Disk:	4.0 Mbits (512 Kbytes)
Per Track:	26.6 Kbits (3.3 Kbytes)
Per Sector:	1 Kbit (128 bytes)

Data Transfer Rate
500 Kbits per second (double density)
250 Kbits per second (single density)

Densities
Bit Density (Inside Track):	6.8 Kbits per inch
Track Density:	48 Tracks per inch (0.013"/0.0308 mm data track width)

Number of Cylinders	77 (154 tracks)

Number of Read/Write Heads	2

Coding Technique
Modified Frequency Modulation (MFM or M²FM)
Double Frequency Modulation (FM)

Rotational Speed	360 rpm ±2.5% (167 msec/rev.)

Average Latency	83 msec

Positioning Times
Access:	3 msec track-to-track
Head Stabilization:	15 msec
Head Load:	35 msec
Motor Start Time to Ready:	2.5 seconds max.

Positioning Mechanism
Stepping Motor:	Magnetic Detent, Band Positioner

Media
IBM Part No. 2305830 (Single Sided)
IBM Part No. 2736700 (Dual Sided)

Physical Dimensions
4.62" high x 9.5" wide x 14.25" deep
117.3 mm high x 241.3 mm wide x 362 mm deep

Weight
Operating:	13 pounds (5.9 kg)
Shipping:	15 pounds (6.8 kg)

Reliability
Read Error (Soft):	Less than 1 in 10^9 bits
Read Error (Hard):	Less than 1 in 10^{12} bits
Positioning Errors:	Less than 1 in 10^6 accesses
MTBF:	Designed to exceed 8,000 hours
MTTR:	Less than 30 minutes
Product Life:	5 years or 30,000 hours

Power Requirements
90-110 VAC, 50Hz, 1.1 amps
90-127 VAC, 60Hz, 1.2 amps
187-264 VAC, 50Hz, 0.3 amps
DC: +24v, 0.07 amps; +5v, 1.8 amps (nominal)

Drive Environmental Requirements
Operating Temperature:	50° to 110°F (10° to 43.3°C)
Maximum Gradient:	20°F (11.1°C) per hour
Humidity:	20% to 80% [85°F (30°C) max. wet bulb]

Heat Dissipation	275 BTU/hour max.

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